

REMARKS

Claims 4-12, 15-18, 20-34, 36, 38-40 and 52-58 are pending. Process claims 53-57 have been withdrawn from consideration as being drawn to nonelected subject matter.

Claims 4-8 have been amended to recite that the foamed body (X_{F1}) comprises an uncrosslinked ethylenic thermoplastic elastomer (A). Also, claims 20-24 have been amended to recite that the foamed body (X_{F2}) comprises an uncrosslinked olefinic thermoplastic elastomer composition (X_2). Support for this amendment can be found in claim 52 and in the following paragraph:

For the olefinic thermoplastic elastomer (X), there is no special restriction as to whether it is cross-linked or not, so long as the compression set and the melt flow rate thereof satisfy the above-mentioned condition.

For the olefinic thermoplastic elastomer (X) to be used according to the present invention, preference is given to, for example, an ethylenic thermoplastic elastomer (A)... (Emphasis added - see page 21).

Furthermore, claims 4-8 have been amended to recite the subject matter of canceled claims 13 and 19.

In addition, claims 20-24 have been amended to recite the subject matter of canceled claims 35 and 37.

No new matter has been added by way of the above-amendment.

[I] Election/Restriction

The Examiner has restricted the claims into the following groups.

Group I, claim(s) 4-13, 15-40, 52 and 58 drawn to a foamed laminate.

Group II, claim(s) drawn to 53-57 drawn to a process for producing a foamed laminate.

The Examiner has taken the position that we have constructively elected by original presentation the subject matter of Group I. The Examiner believes that there is no Unity of Invention, since the cited prior art references allegedly render the instant claims unpatentable. Stated another way, the Examiner finds that there is no "special technical feature" in the present claims which amounts to a contribution over the prior art.

In response, Applicants respectfully traverse and submit that the determination of a special technical feature in the claims is an ongoing process throughout prosecution and that the special technical feature can be added by amendment. Should Applicants amend the claims to recite features that the Examiner agrees are not described in the prior art references, than these features should be considered when considering unity of invention throughout prosecution.

[III] October 9, 2007 and December 13, 2007 Telephone Interviews

Applicants note that the Examiner has contacted Applicants' representative, Garth M. Dahlen, Ph.D., Esq. (#43,575) to conduct a telephone Interview on October 9, 2007. Also, the Examiner was receptive to Dr. Dahlen's call on December 13, 2007. The Examiner's efforts are appreciated. Details of the conversations are given below.

[III] Prior Art Based Issues

The following Rejections are pending:

- (A) Claims 4-13, 15-40 and 52 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over EP '617 in view of EP '782 (The Examiner relies on Yorita et al. US 6,303,666 as an equivalent to EP '782, probably for ease of searching electronically); and
- (B) Claims 4-13, 15-40, 52 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '764 in view of EP '782. Kobayashi et al (US 6,589,664) is relied on as an equivalent form of EP '764.

Applicants respectfully traverse Rejection (A) and Rejection (B).

In response to Rejection (A) and Rejection (B), Applicants have amended the independent claims to recite:

- A foamed laminate based on olefin comprising
 - a substrate layer comprising
 - a foamed body having a foaming expansion ratio of at least twofold comprising
 - an uncrosslinked olefinic thermoplastic elastomer composition comprising
 - 100 parts by weight of an olefinic thermoplastic elastomer and
 - 1 - 20 parts by weight of an olefinic thermoplastic resin, and
 - having a compression set of 60 % or less as determined according to JIS K 6262 (at 70 °C, 22 hours) and a melt flow rate of 0.1 g/10 min. or higher as determined according to JIS K 7120 (at 230 °C, 10 kg load)
 - a skin layer
 - wherein the substrate layer is laminated with the skin layer.

Applicants respectfully submit that these features are neither taught nor suggested by EP'617, Yorita et al. (US 6,303,666) and Kobayashi et al. (US 6,589,664). Specifically, none of these references teach or fairly suggest an uncrosslinked olefinic thermoplastic elastomer composition in the foamed core. It is Applicants' opinion that the present claims require that the thermoplastic elastomer and the thermoplastic resin are not crosslinked together, and that neither the thermoplastic elastomer nor the thermoplastic resin is itself crosslinked prior to combining with the other constituent. Furthermore, none of these cited references teach (explicitly or implicitly) that the uncrosslinked olefinic thermoplastic elastomer has a compression set of 60% or less and a MFR of 0.1 g/10 min or higher as presently claimed. Lastly, none of these cited references teach (explicitly or implicitly) that the foamed body has a foaming expansion ratio of at least twofold, as presently claimed. These distinctions are discussed further below.

In the conventional technique for producing foamed articles of elastomer (vulcanized rubber), a vulcanizing agent and a foaming agent are admixed to natural rubber or a synthetic

rubber and are kneaded, whereupon the resulting kneaded mass is formed into a contemplated shape, followed by heating to effect vulcanization and foaming to obtain a foamed article of the elastomer. In this conventional technique, it is necessary for forming the rubber into a predetermined shape by continuous extrusion to perform preliminarily a process step of kneading a composite blend together with the rubber to obtain the kneaded mass before the continuous extrusion and to carry out thereafter a process step of forming the kneaded mass into a form of ribbon preliminarily for facilitation of easy supply of the kneaded mass to the extruding machine before the continuous kneading.

This conventional technique is disadvantageous in the industrial production, since the production process steps are intricate and, in addition, considerable time is required for both the process steps of vulcanization and of foaming.

As a technique for solving such problems, there is a method of using, for example, a thermoplastic resin, such as an ethylene/vinyl acetate copolymer, low density polyethylene or so on, or a partially cross-linked thermoplastic elastomer constituted of an olefinic copolymer rubber and an olefinic resin. According to this method, the process steps mentioned above can be dispensed with. However, thermoplastic resins and thermoplastic elastomers conventionally used have problems that inferior appearance may be apt to occur due to the tendency for the occurrence of defoaming upon the foaming molding and that the foaming expansion ratio of the foamed article is lower, as amounting only to about 1.5 times; whereby a harder hand touch will result.

Furthermore, when the product is subjected to repeated sliding or a part of the component is subjected to contact with humans or materials, such as in a weather strip or a sealing element on a window sash for an automobile, the conventional foamed body may not be practically used as a sliding element or the like due to inferior durability thereof due to the poor resistance to abrasion and lower sliding performance thereof.

These disadvantages are not seen in the inventive foamed laminate. In the foamed laminate based on the olefin according to the present invention, it is essential to adopt the

combination of a substrate layer comprising a foamed body composed of an ethylenic thermoplastic elastomer having a specific composition, characteristic and greater expansion ratio of at least twofold and a skin layer comprising a specific resin or elastomer composition, and further the foamed laminate is obtained by co-extrusion in which foaming and heat fusion occur simultaneously.

Co-extrusion is a common technique to form a multilayer composite composed of multiple layers of solid resins or elastomers. In the past, however, co-extrusion has not been applicable for the formation of a multilayer composite comprising foamed layers because co-extrusion degases the foamed layers minimizing expansion ratio and obstructing formation of uniform foamed layers having superior quality and appearance.

The present invention provides a foamed laminate based on an olefin which is made of an olefinic polymer permitting recycled use and obtainable at a high foaming expansion ratio and, thus, exhibits a soft hand touch and which is superior in the appearance, in the resistance to abrasion, in the durability and in the sliding performance, in particular, is superior in the resistance to abrasion under difficult conditions.

According to the present invention, degasification during co-extrusion can be prevented and the foamed body (XF1) having foaming expansion ratio of at least twofold can be obtained by adopting the specific uncrosslinked ethylenic thermoplastic elastomer (A) which comprises of a polyethylene resin (comprising little co-monomer) (a-1) and an ethylene- α -olefin copolymer (comprising much co-monomer) (a-2) and having a specific compression set of 60 % or less and a melt flow rate of 0.1 g/10 min or higher. The ethylenic thermoplastic elastomer (A) having superior elasticity confines generated foams in the substrate layer at a high density and in a uniform state and forms the multilayer composite by heat fusion with the skin layer maintaining such a state.

In order to obtain the substrate layer composed of foamed body having a high expansion ratio, incorporation of the specific components with the specific characteristics especially a compression set of the ethylenic thermoplastic elastomer (A) is essential whereby the foamed

body having high expansion ratio of at least twofold is obtained and the foamed laminate is formed by heat fusion.

The foamed laminate obtained has a substrate layer and the skin layer each maintaining the original characteristics and exhibits a soft hand touch and which is superior in the appearance, in resistance to abrasion, in durability and in the sliding performance, in particular, is superior in the resistance to abrasion under difficult conditions.

Applicants respectfully submit that none of these features are either taught or suggested by EP'617, Yorita et al. (US 6,303,666) and Kobayashi et al. (US 6,589,664). As such, significant patentable distinctions exist between the present invention and the cited references and withdrawal of Rejection (A) and Rejection (B) is respectfully requested.

Kobayashi et al. US 6,589,664

Applicants note that the subject matter of US 6,589,664 could be applied against the present claims in the same manner as EP '764, except that US 6,589,664 could be applied under 35 USC 103(a) based on 35 USC 102(e). As such, Applicants now comment on the patentability of the present invention over US 6,589,664.

The instant application and US 6,589,664 are both assigned to Mitsui Chemicals, Inc.

Applicants respectfully submit that for a rejection under 35 U.S.C. §103 based on 35 U.S.C. §102(e), according to MPEP § 706.02(l)(1), effective November 29, 1999, subject matter which was prior art under former 35 U.S.C. § 103 via 35 U.S.C. § 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention "were, at the time the invention was made" owned by the same person or subject to an obligation of assignment to the same person."

MPEP § 706.02(l)(2) instructs that an attorney or agent of record may make a statement to the effect that that application and the reference were, at the time the invention was made, owned by, or subject to an obligation of assignment to, the same person.

Statement Evidencing Common Ownership

The present application, and the US 6,589,664 were, at the time the invention was made, owned by, or subject to an obligation of assignment to, the same person.

Consequences Of The Above-Statement

Accordingly, Applicants respectfully submit that the reference, US 6,589,664, is not available as prior art under 35 U.S.C. § 102(e)/§ 103(c).

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D., Esq. Reg. No. 43,575 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By 

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